

routing path of a call, for communicating with other said radio terminals, and for establishing the respective said radio terminal as a hop for other said radio terminals during a call-connection;

a plurality of gateways, each said gateway being in operative communication with at least some of said series of remote radio terminals;

a gateway controller in operative communication with said plurality of gateways;

*B<sup>1</sup>*  
said gateway controller comprising call control and routing means for directing calls to a destination, and interconnecting means for connecting said series of remote radio terminals to an external network, whereby originating calls from a said radio terminal may be directed to a destination serviced by the external network and calls originating from the external network may be directed to a said radio terminal;

*cont*  
said call control and routing means comprising routing information means for directing an originating call from a said radio terminal via a said gateway to an external network, and for directing a call from an external network to a said radio terminal via a said gateway; and

a plurality of wireless routers operatively connected between said series of remote terminals and said plurality of gateways for wirelessly interconnecting said series of radio terminals and for wirelessly interconnecting said series of radio terminals to said plurality of gateways, whereby said remote radio terminals may indirectly communicate with each other and said gateways through one or more said wireless routers .

**CLAIM 33.** The ad ad-hoc radio system according to claim 32, wherein said interconnecting means comprises means for connecting to one of a: switched cellular network, a PSTN, and an Internet Service Provider (ISP).

**CLAIM 34.** The ad-hoc radio system according to claim 33, wherein said interconnecting means further comprises interfacing means for translating identifying information received from a switched cellular network and for translating identifying information received from a said gateway.

**CLAIM 35.** An ad-hoc radio system comprising:

a series of remote radio terminals each comprising a radio transceiver and a control processor, said control processor comprising software means for determining a routing path of a call, for communicating with other said radio terminals, and for establishing the respective said radio terminal as a hop for other said radio terminals during a call-connection;

at least one gateway in operative communication with said series of remote radio terminals;

a plurality of wireless routers in operative connection between said series of remote terminals and said at least one gateway for wirelessly interconnecting said series of radio terminals and for wirelessly interconnecting said series of radio terminals to said at least one gateway, whereby said remote radio terminals may indirectly communicate with each other through one or more said wireless routers and said at least one gateway.

**CLAIM 36.** In an ad-hoc radio system comprising a series of remote radio terminals each comprising a radio transceiver and a control processor, said control processor comprising software means for determining a routing path of a call, for communicating with other said radio terminals, and for establishing the respective said radio terminal as a hop for other said radio terminals during a call-connection, at least one gateway in operative communication with said series of remote radio terminals, a plurality of wireless routers in operative connection between said series of remote terminals and said at least one gateway, a method of connecting a call from a radio terminal of the ad-hoc radio system, comprising:

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- (a) routing the call to a said radio terminal via a said wireless router;
  - (b) relaying the call from the said wireless router to said at least one gateway;
  - (c) connecting the call via said at least one gateway to another said radio terminal.
- cont

**CLAIM 37.** The method according to claim 36, wherein said step (c) comprises routing the call through at least one wireless router.

**CLAIM 38.** The method according to claim 37, further comprising before said step (a):

- (e) registering the radio terminal with said at least one gateway;
- (f) said step (e) comprising determining a routing table for the path of connection to the gateway, and sending authentication information to the gateway.

**CLAIM 39.** In an ad-hoc radio system comprising a series of remote radio terminals each comprising a radio transceiver and a control processor, said control processor comprising software means for determining a routing path of a call, for communicating with other said radio terminals, and for establishing the respective said radio terminal as a hop for other said radio terminals during a call-connection, at least one gateway in operative communication with said series of remote radio terminals, a plurality of wireless routers in operative connection between said series of remote terminals and said at least one gateway, a method of connecting an outgoing call of a radio terminal of the ad-hoc radio system, comprising:

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- (c) routing the call to a said radio terminal via a said wireless router;
  - (d) relaying the call from the said wireless router to said at least one gateway;
  - (c) connecting the call via said at least one gateway to another said radio terminal.
- cont

**CLAIM 40.** The method of making an outgoing call from a radio terminal of an ad-hoc radio system according to claim 39, wherein said ad-hoc radio system further comprises a gateway controller in operative communication with said at least one of gateway, said gateway controller comprising call control and routing means for directing calls to a destination, and interconnecting means for connecting said series of remote radio terminals to an external network, said method further comprising:

- (d) connecting the outgoing call to one of a: switched cellular network, a PSTN, and an Internet Service Provider (ISP) through said gateway controller.
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